Nutrition News

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HEALTH THROUGH BETTER NUTRITION

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Nutrition is one of the important environmental factors concerned with health. Whenever man has consumed food in such variety and quantity that all nutritional needs of the body are fully met, he has been well-nourished and is generally in improved health.

The general thesis of improved health through better nutrition is supported by numerous examples that can be drawn not only from the history of mankind, but from studies on groups of people, from everyday experiences in any hospital, or from investigations with a variety of animals. Thus, one can recount the classic work of McCarrison in studies on tribes in India where he found unmistakable evidence of improvement of health through better nutrition. Orr and Gilks studied two South African tribes with a view to improvement of physical efficiency through improved diet. These tribes live in regions similar as to climate and agricultural possibilities. There were marked differences in weight, height and muscular strength of the adults in the two groups. Of the children up to 8 years of age ¾ of them in one tribe and in the other only ¼ were graded as in good physical condition. Skeletal deformities, dental caries, spongy gums, anemia, diseases of the skin, and tuberculosis were rare in one tribe, and common in the other.

There were undoubtedly genetic differences between these people, but there were also significant dietary differences. One tribe consumed large quantities of milk, meat, and blood. The other tribe, while they raised large herds of goats, treasured them as wealth—not as food. They lived mostly on cereals and roots.

Improved Health With Better Diets

The classic study of Dr. Correy Mann on English schoolboys was carried out over a four-year period on approximately 200 boys of 6 to 10 years of age. It shows the value of extra milk in improving health on diets which were thought to fulfill all nutritional needs. The boys on the best diet—the basal diet plus a pint of milk per day—gained more weight, grew taller, improved in general fitness, had fewer respiratory infections and other illnesses and were improved in mental capacity.

Gilbert and Gillman report cirrhosis and carcinoma of the liver and tuberculosis are far more prevalent among the Negros than among the whites in South Africa. The effect of the typical Negro diet on albino rats was tested over a two-year period. Growth was poor in the test animals as compared to the controls receiving a mixed diet. After 15 months, the test animals had lost much of their hair, their corneas were scarred and filled with capillaries and numerous dental defects had occurred. Post-mortem findings were what might be expected as the result of chronic multiple deficiencies and as secondary manifestations of the extensive liver changes. This experiment demonstrates that long continued poor nutrition may have a close connection to many disease syndromes that are common today.

Nutrition is not a panacea for man's ills, but it deserves equal rank with other factors affecting man's health and welfare. It should, therefore, be equally acknowledged in the educational and practical aspects of health and medical programs, as well as in research programs. Only through research will we someday discover why this or that nutrient is necessary in the complicated and dynamic myriad of chemical reactions which constitute the metabolic activity of the cell and which affect health so pointedly.

Doctor Stare

In the practical improvement of health through better nutrition, three main factors need to be stressed: (1) an appreciation of what good nutrition can contribute to health; (2) a working knowledge of what constitutes a healthful diet at the different stages of life; and (3) economic ability to provide a nutritious diet. For most of us better nutrition means improved health and happiness.

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Glances AT NUTRITION RESEARCH

The problems of infant feeding have always been a matter of great concern to nutritionists. Progress has been necessarily slow with respect to the practical application of research findings. The following abstracts illustrate current efforts to bring research one step nearer such application.

Vitamins in Human Milk—Twenty-four hour samples of human milk were analyzed for a number of different vitamins. It was found that the women who received a special diet of high vitamin content produced milk which was somewhat higher in vitamins than was that produced by women on self-chosen diets.

A comparison of the values for human milk with those obtained for cow's milk revealed that the human milk was higher in ascorbic acid, niacin, and inositol. However, it was lower than cow's milk in thiamine, riboflavin, pyridoxine, biotin, and pantothenic acid.

—J. Am. Med. Assn. Vol. 130:215 (Jan.) 1946.

Individualized Infant Feeding—Balance studies on premature, full-term, and marasmic infants yielded data which indicate the necessity for "individualization in the feeding of infants, sick and well, premature and full-term." Wide variations in requirements for calories, protein, minerals, and vitamins were noted not only between these different groups, but also within each of the groups.

It was found that a reduction in the fat intake of premature infants was necessary to prevent fecal losses and to insure proper growth. This was a quantitative rather than a qualitative effect since both human and cow's milk as well as modified cow's milk gave the same result. The capacity of premature infants to retain nitrogen was highly efficient, however. The absorption of nitrogen from cow's milk was equal to that observed for the nitrogen of human milk. Evidence obtained indicated the need for high protein diets during the rapid growth of infancy. It was suggested that the protein content of human milk was insufficient for the needs of premature infants.

Data on calcium and phosphorus metabolism indicated that human milk is too low in these two minerals to supply the needs of premature infants. A cow's milk mixture was found to be satisfactory. It was also noted that these infants needed greater quantities of vitamins A and D than did the full-term babies.

Disturbances in the metabolism of phenylalanine and/or tyrosine in premature infants were off-set by the administration of large doses of ascorbic acid. The authors recommend, therefore, that ascorbic acid be added to the diet of premature infants shortly after birth in order to prevent the occurrence of this metabolic disorder.

—J. Ped. Vol. 25:464 (Dec.) 1944.

Production of Human "Vitamin D" Milk — Supplementation of pregnancy diets with large doses of fish liver oil did not result in a transfer of appreciable quantities of vitamin D to the mother's milk during subsequent lactation. However, the administration of the supplement during labor or during lactation had a considerable effect.

The provision of a daily supplement containing 40,000 I. U. of vitamin D resulted in the production of milk with a vitamin D content ranging from 125 to 583 I. U. per quart and averaging 310 I. U. per quart. The minimal daily maternal dose of vitamin D which would yield a satisfactory increase in the milk secreted was not determined.

—J. Nut. Vol. 30:451 (Dec.) 1945.

TIMELY TOPICS

Dr. Stare

Dr. Fredrick J. Stare, author of the leading article in this issue received his Ph.D. degree from the University of Wisconsin and his M.D. degree from The University of Chicago. Dr. Stare has been active on the Committee of Protein Foods and the Committee on Medical Nutrition of the National Research Council and has served as Consultant in Nutrition to the Surgeon General of the Army. He is editor of "Nutrition Reviews."

Miss Dickinson

Miss Elizabeth Ann Dickinson, author of the first article on the opposite page, has been stationed in India with the American Red Cross since the fall of 1944. After a three months course with the Red Cross in Washington, and an interneship at Ft. Mead, Maryland, she sailed for India. Miss Dickinson received her master's degree in nutrition at Iowa State University. She was a member of the Nutrition Department of National Dairy Council preceding her Red Cross service.

Dr. Wilkins

Dr. Walter Wilkins, author of the second article on the opposite page, received his Ph.D. in biochemistry and his M.D. from Vanderbilt University. He has been Director of School Health Services of the North Carolina State Board of Health and Nutrition Medical Officer with the War Food Administration. He has done nutrition appraisal work on children in all parts of the country. He has recently joined the Florida State Board of Health.

OBSERVATIONS ON NUTRITION IN INDIA

By Elizabeth Ann Dickinson, American Red Cross Hospital Recreation Worker
371st Station Hospital, Kanchrapara, India

The bulk of India's population exists in a state of malnutrition all of the time — in varying degrees, according to geographical location and wealth of the individuals. Nutritional deficiency diseases are common in India and states of malnutrition which fall short of serious disease are widespread.

Although most of the Indian people give the appearance of being extremely poverty-stricken, I have seen evident differences in physical appearance and in enjoyment of life from one part of the country to another. In some of the northern provinces the children look healthier than in the plains and are usually seen playing games and laughing. In and near Calcutta the children are either working — shoeshining, "watching" cars, selling "jewels" — or merely begging, and are in very obvious state of malnutrition.

India has experienced many severe famines. These famines — although rather frequent as we look at such catastrophes — are not the usual situation, however. As an outsider driving through the villages and even visiting in some of the huts, I find it difficult to comprehend how the poor people of India exist even in so-called normal times. This low level of health is reflected in the life expectancy of 27 years for men and the high mortality rate of children under 10 years of age.

A Typical Indian Diet

In general, diets in India are defective because they do not contain protective foods in sufficient abundance. A typical diet consumed by millions in India totals 1750 calories and is made up of 15 ounces rice, 1 ounce milk, 1 ounce pulses, 1.5 ounces non-leafy vegetables, 0.25 ounces green leafy vegetables, and 0.5 ounces fat and oils. The incidence of deficiency diseases shows that typical rice diets are deficient in vitamin A, calcium, and various factors in the vitamin B complex.

The total annual production of milk is estimated as about 22 million tons, or 23,000 million litres. This amounts to a daily per capita intake of all milk products, in terms of liquid milk, of about 5 ounces. Consumption varies greatly in different parts of India, being higher in the northern provinces than in the rest of the country. For instance, in the Punjab, milk production has been estimated as 19.7 ounces per capita daily, and in Madras Presidency 3.6 ounces. In many parts of India, milk and milk products are consumed in very small amounts, if at all, by the poorer classes.

Approximately 44 per cent of the milk supply is obtained from cows, 50 per cent from buffaloes, and 3 per cent from goats. The milk of Indian cows is reported to contain 25 to 50 per cent more fat than that of European cows, while buffaloes' milk contains more than twice as much. About 27 per cent of the total milk supply is consumed as fluid milk. Most of the rest is used for the manufacture of "ghee."

The city of Bombay has attempted to bring milk within the reach of the children. In two years (prior to March, 1945) milk had trebled in price and the population of the city had increased tremendously. Price control alone would have led to the use of larger quantities by hotels and the well-to-do; so the government subsidized supplies for the children. The mother obtained a milk card from the rationing office and registered it with a milk distribution center. This enabled her to buy 8 ounces daily for her child at half the market rate. The scheme started with infants under 2 years and then was extended to expectant and nursing mothers and to children under 10.

Indian Red Cross Welfare Centers have made a start in the free milk distribution work throughout the country—for mothers and children. Although it has been possible for these centers to reach a limited number of women and children, the fact that there is a cognizance of the need and something is being accomplished—however slight —is gratifying. The Indian Red Cross carries on other functions in the way of clinics, mothers' classes, and other welfare activities.

KNOWLEDGE OF NUTRITION SHOULD GUIDE RATIONAL PRACTICE

By Walter Wilkins, Ph.D., M.D., Director
Nutrition Investigations and Services, Florida State Board of Health

We have added much to our **knowledge** of nutrition in the past thirty to forty years and should have a great advantage over our forebears as far as nutrition is concerned. Such health knowledge should release us from the rule of chance and give us a rational guide to health and longevity. However, in spite of much new knowledge, certain trends have helped make it easier to be malnourished in this modern day. Among these insidious trends we might mention three in particular.

1. The introduction of many labor-saving devices during the past century has caused a reduction in the average number of calories consumed per capita. Less physical work means fewer calories burned. Thus, if we were eating the same food, but less of it, our intake of vitamins, minerals and protein would be reduced in proportion to the reduction in calories. However, our **needs** for certain of the vitamins, minerals, and protein substances are not thus reduced.

2. Another change has been the gradual depletion of important minerals in the soil. Even when certain fertilizers are used they may stimulate plant growth without contributing materially to the replacement of the important minerals. In fact, increased growth may actually dilute what little mineral matter is absorbed by the plants. There is little doubt that depletion of mineral matter in the soils has decreased the nutritive value of certain food crops.

3. The tendency toward "refinement" of foods is well-known. Unfortunately so-called refinement usually lowers nutritive value, even though at times it may improve appearance or cooking quality. For example, our national per capita purchases of refined sugar have increased about 1000 per cent in the past 100 years. Before the recent sugar

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DID YOU KNOW ?

—that the ice cream cone originated a half century ago at the St. Louis World's Fair?

—there are 2100 species in the carrot family?

—that one-fourth of the total area under cultivation in the world is devoted to growing wheat, and the annual harvest is approximately 140,000,000 tons?

—that milk is a good anti-pellagra food in spite of its low niacin content?

—that oranges in 1944 accounted for 73% of the total world citrus crop?

—that butterfat contains fatty acids which promote storage of vitamin A in laboratory animals?

—that green celery is more nutritious than blanched celery?

—that Cheddar cheese held at 60° F. can be ripened as fully in three to four months as that held at 50° F. for six months?

THINGS YOU'LL LIKE TO READ

FOOD VALUE CHARTS—Philadelphia Child Health Society, 311 South Juniper St. Philadelphia 7, Pa. 50 cents. 1946.

This set of twelve charts is a revision of a similar series of teaching aids published in 1942. The charts emphasize foods relatively low in cost and commonly available in most parts of the country.

TABLES OF FOOD COMPOSITION IN TERMS OF ELEVEN NUTRIENTS—U.S. Department of Agriculture Miscellaneous Publication No. 572. U. S. Government Printing Office, Washington, D. C. 10 cents. 1945.

A very useful booklet which gives the nutritive value of 100 grams of selected foods, edible portion; also nutritive value of one pound of selected foods, as purchased.

A NUTRITION BIBLIOGRAPHY—American Dietetic Association, 620 N. Michigan Avenue, Chicago 11, Illinois. 25 cents. 1945.

This attractive bibliography has been compiled by the Community Nutrition Section of the American Dietetic Association. The seven sections are as follows: nutrition in pregnancy and lactation; nutrition and the pre-school child; nutrition and the school child; nutrition and the family; nutrition in the community; nutrition in industry; and sources of films and film lists.

EATING AROUND THE WORLD—Revised and enlarged. 50 cents. New York State Dietetic Association. 1944.

An interesting and helpful booklet for teachers, social workers and nutritionists with welfare agencies. Includes foreign food habits and customs with sample menus and recipes.

KNOWLEDGE OF NUTRITION SHOULD GUIDE RATIONAL PRACTICE

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shortage, an average of about 120 pounds per capita per year of white sugar was disappearing from the market in this country. If all this sugar had been eaten by humans, it would be equivalent to an average of about 600 calories per capita per day.

These three potentially detrimental trends—reduction of amount of food consumed, reduced mineral content of soil, and super-refinement of foods—have not been given enough attention. How do these trends affect you and me? We cannot answer this in detail but we can say that they represent hidden dangers and make it all the more necessary for us "to choose our calories by the company they keep." That is, we should emphasize fruits, vegetables, milk, and meat which are rich in minerals, good quality protein, and vitamins and let the calories shift for themselves. Incidentally, we are not likely to over-eat, calorically speaking, if we follow this plan.

In the course of our work with the War Food Administration we had an opportunity to inspect, examine or test thousands of school children for nutritional difficulties throughout the country. The high percentage of children showing one or more of the presumptive signs of nutritional disturbances has been rather shocking. Bone changes suggesting rickets, pallor, eye signs, abnormalities of lips, gums, tongue and teeth, poor posture, and various other signs supposedly related to poor nutrition are far more common than many people realize. (In the course of doing some tests on high school children in the midwest, we found that 48% of the high school girls had not eaten breakfast on that day.) If such gross conditions are so prevalent, might not we be sure that minor functional disturbances are even more common?

These findings among school children strongly suggest that we are not using what we know. What are we doing with our new knowledge of nutrition? To quote Boudreau and Kruse[1] "Too often the application of new knowledge has been long delayed." In our nutrition work let us emphasize the fact that knowledge does not compensate for poor practice, it simply serves as a guide for rational practice.

[1]Boudreau, F. G., and Kruse, H. D. *Malnutrition—A Challenge and an Opportunity.* American Journal of Public Health. 29:427-433, May, 1939.